STOPPING AIR POLLUTION AT ITS SOURCE

CAP

Explanatory Notes

Environment Ontario
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Minister

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CLEAN AIR PROGRAM

EXPLANATORY NOTES

Ce document d'étude existe aussi en français.

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INTRODUCTION

Environment Ontario is responsible for achieving and maintaining a quality of the environment that will protect human health and the ecosystem and will contribute to the well being of the people of Ontario. The Environmental Protection Act is the key legislation that gives the government the power to achieve these ends.

Regulation 308, under The Environmental Protection Act, is the principal regulation relating to air pollution control.

REGULATION 308 REVIEW

A Government review of the air pollution control program found the regulation needed updating to provide additional protection for the people of Ontario and the environment. Subsequently, a Discussion Paper of basic reforms of the Air Pollution General Regulation (Regulation 308) has been prepared by the Ministry which outlines proposed amendments and seeks public comment.

In order to develop a regulation that is effective, enforceable, and appropriate for the foreseeable future, we are seeking your advice, comments and criticisms. Written submissions should be made to the Minister's Office by March 31, 1988. During this review period, public meetings and further consultations with special groups will be arranged. A draft regulation will then be prepared and circulated to interested parties. Further comment will be invited over a 45 day period prior to developing the final regulation.

DISCUSSION PAPER EXPLANATORY NOTES

This document contains an overview of proposed amendments; a summary of objectives; and definitions of terms and phraseology. The full Discussion Paper is available from the Ministry. Please refer to the last page for addresses and phone numbers.

OVERVIEW OF PROPOSED AMENDMENTS

The basic philosophy of the old regulation was to limit emissions to the environment on the basis of point of impingement effects after dispersion. Often, it was possible for a source to meet the standards of acceptability by utilizing dispersion in the atmosphere. Depending on the results of the calculation of the concentration of a contaminant at the point of impingement, a Certificate of Approval for the construction of plants may or may not be granted.

A number of weaknesses in this approach have been identified. In the last 10 years, research has provided a much more scientific and accurate understanding of the causes and effects of air pollution. Advances have also been made in the technology of pollution control, and more sophisticated computer modelling allows us to determine the effects of:

* long-range transport
* long-term deposition
* very short-term effects
* very long-term effects
* bioaccumulation and persistence

It is now known that some chemicals persist in the environment much longer and travel further than originally believed; that even in very small doses some can be extremely hazardous; and that many can subsequently enter into the food chain.

The old regulation:

* lacks specific requirements for treating emissions prior to their discharge through stacks
* uses air quality models that are no longer current and which are being applied beyond their original limits
* does not have specific rules for use in multiple source situations
* cannot deal with fugitive sources very satisfactorily because of confusion over which models to use
* is weak in dealing with land use changes
* has no provisions for experimental situations
* creates no opportunity for direct public participation in the standard setting and Certificate of Approval process
* has no system for imposing ongoing operational requirements and grants Certificates of Approval without expiry dates
* establishes criteria which are unenforceable

These are some of the substantial number of areas where actual or potential problems have become apparent. Therefore, to reduce air pollution in Ontario, the Province's air pollution control program must be reviewed and updated.

SUMMARY OF AMENDED REGULATION 308
OBJECTIVES

The Ministry is committed to developing a regulation which requires systematic air pollution reductions to ensure that a high standard of air quality in Ontario is achieved. In working towards that goal, the proposed amendments are designed to attack air pollution on two fronts:

Emission Limits:
Perhaps the most significant change is a new approach to controlling air emissions. The use of dispersion to deal with air pollutants will be replaced by controlling an emission at its source before it escapes into the atmosphere. This will be achieved by requiring polluters to control emissions to the degree appropriate for the contaminants they contain.

These emission limits must be attained by air polluters, but they may do so in whatever way they wish. Polluters may develop new pollution control devices, or adapt existing devices to make them more efficient; or change production processes to avoid creating toxic waste by-products. The Discussion Paper proposes that Certificates of Approval to operate should be renewable every 10 years. This will ensure that requirements for emission control can be re-examined and likely made more stringent at each renewal. The ultimate aim of the proposed regulation is the virtual elimination of toxic air pollution from Ontario sources.

Classification of Contaminants:
It is proposed that a method for ranking contaminants based on the toxicity, persistence, bioaccumulative and transport characteristics be implemented. The ranking would use a scoring system in which chemicals are evaluated in a number of categories, each representing an important hazard to health or property. The magnitude of the

score would reflect the level of concern. Substances with high toxicity, such as those with the ability to induce cancer or mutate genes, and highly toxic substances and chemicals which do not readily break down in the environment or which tend to bioaccumulate, would be rated as high-hazard contaminants. Examples include lead, cadmium, dioxin, and benzo(a)pyrene. Polluters emitting these contaminants would have to reduce them to the levels attainable by the best removal technology known anywhere in the world (LAER).

Substances rated as medium or low hazard would be subject to levels of pollution control appropriate to their classification.

TWO-LEVEL CONTROL SYSTEM:
In the two level system, high hazard contaminants would trigger a very strict level of emission control (LAER). Other contaminants would be required to meet a lesser level of control (BACT-EA).

THREE-LEVEL CONTROL SYSTEM:
Under the three level system, chemicals would be categorized as high, medium and low hazard contaminants. High hazard contaminants would face the strictest controls (LAER); medium hazard contaminants would require reductions attainable by the best generally available technology which is economically achievable (BACT-EA); and low hazard contaminants would require reductions attainable by technology generally demonstrated as acceptable.

Ambient Air Standards:
We propose a second line of defense for Ontario's air. In over-loaded air sheds, even greater abatement will be needed than would be required by emission limits. The Ministry proposes to establish ambient air standards for various contaminants. If a standard is exceeded, the sources would be identified by the Ministry's new computer models of air dispersion patterns. Sources would then be required to abate further until the standards are met.

This approach, which would replace the old single source point of impingement system, should be particularly effective in addressing complex urban air pollution situations.

Once passed, the regulation will come into effect immediately for all new sources (approximately 1200 annually). Of the 20,000 existing sources, the most hazardous air polluters (estimated at 10,000) would be phased in within 5 years. The remaining 10,000 significant sources would be phased in within 10 years.

DEFINITION OF TERMS AND PHRASEOLOGY.

Act:
An Act is an act of the Legislative Assembly. It is sometimes called a statute, and it expresses the law.

Air Emission:
Any discharge into the air.

Air Pollution Index (API):
Established in 1970 as an information and control mechanism, the Air Pollution Index assesses the combined affects of sulphur dioxide and suspended particulate matter. The combination of these two major pollutants in the environment was found to be related to adverse health effects.

Air Quality Index (AQI):
This index will supplement the API as a source of a air pollution information. Instruments will measure the concentration of carbon monoxide, ozone, nitrogen dioxide and total reduced sulphur compounds as well as the two contaminants currently monitored under the API, both separately and in combination. While the API is based on a 24-hour average of contaminants levels,. the AQI will report on a current basis, consistent with air quality at the time of announcement.

Air Quality Modelling:
Air Quality Modelling is used to predict what will happen to the ambient air quality when contaminants are released into the atmosphere.

BACT-EA: (Best Available Control Technology)
BACT-EA would result in an emission rate capable of being achieved by the best available control technology, taking into consideration reasonable economic factors. BACT-EA sources will require

installation of continuous monitoring systems with recording abilities which reflect the state of operation and/or maintenance of the emission controls. Stack testing would be required within six months of the facility's start-up and, subsequently, at the Director's discretion, at intervals of 12 months or more. BACT will be determined on a case-by-case basis, which will provide flexibility in the selection of control technology.

Certificate of Approval:

A Certificate of Approval is required prior to construction of a facility which may emit contaminants into the air. Most Certificates of Approval now contain no operating requirements. Certificates of Approval now have no expiry date. Further controls can be applied only if it is determined that contamination exceeds acceptable maximum levels or if alterations are undertaken at that facility. Periodic spot testing by ministry staff or complaints from individuals or communities often lead to further investigation. If it is determined that the levels of emission are unacceptable, a control order may be issued. The proposed amendments would make the approval process twofold, requiring a Certificate of Approval for construction and a Certificate of Approval for operation. If changes are proposed to emission sources, processes or rates of production, a reapplication would be required. The Certificate of Approval for operation would expire every 10 years. In this way, a control system would be put in place that would require a reappraisal of the technology, based on the level of current knowledge. This periodic review provision is designed to result in ever-lessening air pollution by promoting the installation and use of up-to-date, appropriate control technology. To cope with special circumstances, it is further proposed that Directors should be given the right to request reviews at more frequent intervals. This will permit the Ministry to regulate newly recognized problems in a satisfactory manner.

Environmental Air Standards Setting Committee (EASSC):
This is a body of representatives from within Government that is charged with the responsibility of providing documentation and evaluation of contaminants, leading to recommendations for ambient air quality criteria, standards, guidelines and provisional guidelines. Requests for new criteria, standards and guidelines are initiated by Ministry personnel, usually in the course of evaluating applications for Certificates of Approval. Under the proposed amendments to the regulation there will be non-government representation on EASSC.

Fugitive source:
A fugitive source is any source where emissions to the air are not collected or contained for example, doorways, windows, coal piles, road-dust and uncontrolled activities such as loading and unloading of trucks, as well as leaks from process equipment.

Guideline:
A guideline, as it is used in the Discussion Paper, is a suggested maximum level of a particular pollutant. A guideline is legally enforceable only when it is included in a Control Order or Certificate of Approval.

LAER: (Lowest Achievable Emission Rate)
This would denote the Lowest Achievable Emission Rate achieved by the best emission control system available, or its equivalent. LAER sources will require the installation of continuous monitoring systems with recording abilities. These will reflect process operating conditions and/or maintenance of the emission controls. Stack testing will be required within six months of the facility start-up and subsequently at intervals of not more than 12 months. Economic factors would be secondary.

Plume:
A plume is the collective emissions as they move through the atmosphere.

Point of Impingement:
This is the point where a plume makes contact with any earthbound surface. A mathematical equation (Atmospheric Dispersion Model), selected according to the situation, is used to determine the point of impingement for a particular source. The equation used may take into account air patterns, meteorological conditions (weather), stack characteristics, exit gas temperature, geographical factors, and type of emission. Variations in any one of these components will affect the location of the final point of impingement for that source and its maximum predicted level of air pollution.

Provisional Guideline:
A provisional guideline establishes criteria based on current knowledge. It requires less authoritative approval than a guideline.

Regulation:
A regulation is a legal document, given cabinet approval, that has been written under authority given in an Act. It is more specific than the Act.

Source of Atmospheric Emissions:
Any stack, vent, process, system or area that produces or releases an emission into the atmosphere is considered to be a source of emission.

Standard:
A standard, as it is used in the Discussion Paper, is the legally enforced maximum level of a particular pollutant.

Tentative Standard:
A tentative standard is a standard not yet finalized.

CONCLUSION

The Government prepared the Discussion Paper so it could develop the best possible air pollution reduction program. Public involvement is vital in this process and your advice, comments and criticisms are essential if we are to get the most effective and workable cleanup of our air underway. Written submissions will be accepted until March 31, 1988.

The Discussion Paper in its entirety is available upon request from the Public Information Centre, Environment Ontario, 135 St. Clair Avenue West, Toronto, Ontario M4V 1P5, (416) 323-4321 or at one of the following regional or district offices.

Southwestern

London (519 661-2200)
985 Adelaide St. South
N6E 1V3

Windsor (519 254-2546)
250 Windsor Ave. W.
6th Floor
N9A 6V9

Sarnia (519 336-4030)
265 N. Front St.
N7T 7X1

Owen Sound (519 371-2901)
1180 20th St.
N4K 6H6

Chatham (519 354-2150)
P.O Box 726
435 Grand Ave. W
N7M 5L1

Clinton (519 482-3428)
c/o Ministry of Agric. & Food
P.O. Box 688
N0M 1L0

Southeastern

Kingston (613 549-4000)
P.O. Box 820
133 Dalton Ave.
K7L 4X6

Cornwall (613 933-7402)
205 Amelia Road
K6H 3P3

Belleville (613 962-9208)
15 Victoria Avenue
K8N 1Z5

Ottawa (613 521-3450)
2378 Holly Lane
K1V 7P1

Pembroke (613 732-3643)
1000 MacKay St.

Central

Toronto (416 424-3000)
7 Overlea Blvd
M4H 1A8

Oakville (416 844-5747)
1235 Trafalgar Rd., Suite 401
L6H 3P1

Barrie (705 726-1730)
12 Fairview Rd
L4N 4P3

Gravenhurst (705 726-3408)
Gravenhurst Plaza
General Delivery
P0C 1G0

Peterborough (705 743-2972)
139 George St. N.
K9J 3G6

West Central

Hamilton (416 521-7640)
P.O. Box 2112
119 King St. W. 12th Floor
L8N 3Z9

Cambridge (519 653-1511)
P.O. Box 219
400 Clyde Road
N1R 5T8

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L3C 1L9

Northeastern

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445 Albert St., East
P6A 2J9

Parry Sound (705 746-2139)
74 Church Street
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